



Hillerød Track Monitoring, Denmark



PROJECT SUMMARY

NAME: Hillerød

YEAR: 2012

CLIENT: Banedanmark

MAIN CONTRACTOR: K&L

CONSULTANT: Hansen and Hennerberg



OVERVIEW

As part of a trial for Banedanmark, a Geosense MEMS track monitoring system was installed over an initial 20 metre length track at Hillerød near Copenhagen in Denmark to monitor the twist and cant of the track in an area of high instability. Following the initial trial, it was intended to install several systems in areas where instability is of major concern.

MEMS technology was chosen as it is not affected by temperature or vibration and the installation was undertaken during the night in temperatures of minus 15 Celsius.

MONITORING

Due to the sub-zero conditions the temperature range of the instruments was crucial. The custom-built bolts ensured no additional movement occurs which could affect results. The articulated joints with a bush ensure the joints don't shear when twist occurs.

The client was looking for an automated system which could be drawn into their network with visualisation software. The trend charts and maps allow for instant visualising and enabled them to build a profile.

The systems comprised Sensor Mounting Plates, Track Tilt Meter Cradles and Rods, Uniaxial Track Tilt Meters, Rod Swivel Bushes and BUS Cable which was connected up to a multi-sensor data logger for monitoring and storing data from all sensors.

The requirement was for a system where the sensors could sit within the tracks.

PRODUCTS USED

Track Monitoring System

Highly accurate MEMS digital tilt sensors with single cable digital bus system for monitoring twist and settlement of railway tracks in areas of instability.

GeoAxiom

Easy to use data visualisation software designed to allow the user to retrieve data in or near real time and process the information in map, profile or graph formats.

GeoLogger 800

Automatic data logger used to collect data and upload to the internet.